



Dodge County Farmers for Healthy Soil-Healthy Water

Field Day Agenda- August 2, 2017

We hope this field day helps answer the following 3 questions about cover crops:
What am I going to plant? How am I going to plant it? How much does it cost?

- | | | |
|---------|--|---------------------------------------|
| 10:00 | Welcome | <i>Tony Peirick</i> |
| 10:10 | "Cover Crops-What to Plant?" | <i>Heidi Johnson-Dane County UWEX</i> |
| 10:40 | Seed Mixer- Seed Suppliers- update (Byron Seeds, Lacrosse Seeds, Legacy Seeds, PIP, Kratz Farms, etc.) 1-minute speed-update | |
| 11:00 | Highlighting Dodge Co Farmers-- Cover cropping in Dodge <ul style="list-style-type: none">• <i>Tony Peirick</i> -- planting green• <i>Marty Weiss</i> -- interseeding into corn• <i>Jeff Gaska</i> -- frost-seeding red clover into wheat• <i>Loretta Ortiz-Ribbing</i>, UWEX -- on-farm research plots | |
| 12 Noon | Box Lunch from Jimmy John's sponsored by Dairy Business Association, WI Soybean Marketing Board, and Compeer Financial | |
| 12:30 | "Balancing Economic & Environmental Performance with No-till and Cover Crops" <i>Jim Leverich-UWEX On-farm Research Coordinator</i> | |
| 1:30 | Equipment Mixer— Discussion of aerial seeding, vertical seeding, no-till drills, airflow, and interseeding equipment examples | |
| 1:50 | Equipment Calibration- It's Easy as Pie | <i>Robert Bird & Marty Weiss</i> |
| 2:00 | Final Comments/Upcoming Events <i>Tony Peirick</i> | |



Contact Information

To join Dodge County Farmers for Healthy Soil & Healthy Water- call
Tony Peirick, T & R Dairy Farm, Watertown (920) 390-0583

UWEX Crops & Soils Agent Loretta Ortiz-Ribbing (920) 296-5293

UWEX On-Farm Res. Coordinator Jim Leverich (608) 487-2878

Byron Seeds Brendon Blank (920) 285-4640

Lacrosse Seeds Jeff Weinkes (800) 328-1909

Badgerland Seeds Phil Waldvogel (920) 210-1040

Legacy Seeds Kevin Voigt-Voigt Farm Sales (920) 210-1646

Partners in Production (PIP) John Simon (920) 253-0198

Kratz Farms Ricky Kratz (414) 507-4631

Reabe Spraying Service Damon Reabe (920) 324-3519

Ballweg Implement-JD Tom Ballweg-Dave Miller (920) 324-3537

Lemken Carl F. Statz (888)867-8289

Salford Mike Dopp (715) 519-0170

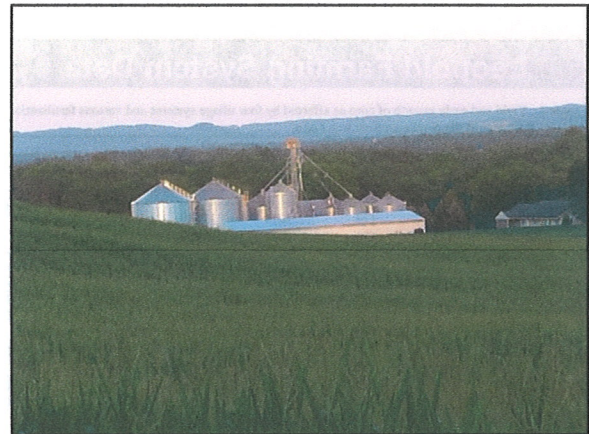
Waupun Equipment-Kuhn Greg Kast (920) 210-6740

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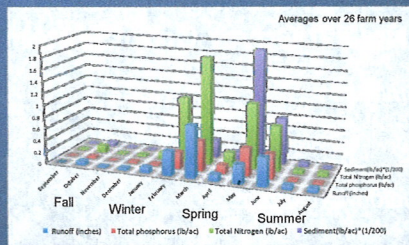
Dairy Business Association
Wisconsin Soybean Marketing Board
Compeer Financial
Sam's Well Drilling
Jung Seeds
Byron Seeds
Badgerland-Waldvogel Seeds
Foremost Farms-USA
BMO Harris Bank

Enhancing Economic and Environmental Performance

Jim Leverich
On Farm Research Coordinator
University of Wisconsin



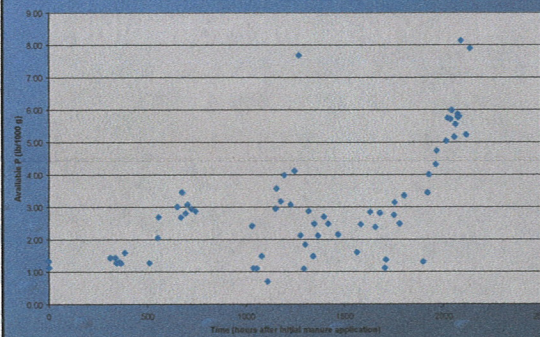
Mean Monthly Runoff, P-, N- & Sediment Loss from Discovery Farms and Pioneer Farm 2003-08



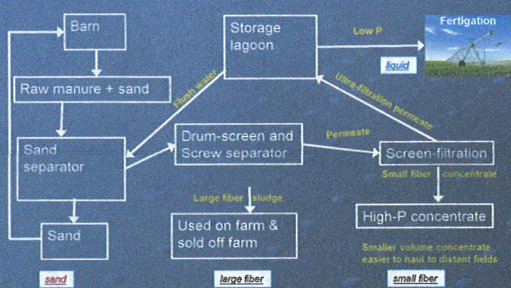
Late Winter and Spring are the times of maximum runoff, P-loss, N-loss and Sediment loss in Wisconsin

Phosphorus Values Over Time

Figure 3. Relationship between time and manure P content, 2007



Manure Processing (Separation) can reduce this environmental risk



Manure Separation: Screen Filtration

Soil, Water, Nutrient and Profitability Management

- **Farm by Farm Adoption**
 - Select Early Adopters to Model and Demo Systems
 - Introduce New BMPs and Systems
 - Have Patience to Develop a Systems Plan
 - Develop Trust by Working and Learning Together
 - Allow Adequate Time for Adoption
- **Implementation**
 - Select New BMPs and Systems
 - Try out New BMPs on a Small Scale
 - Use On-Farm Research to Validate
 - Allow Adequate Time for Adoption

Leopold Farming System Data

Table 1. Yield and early growth of corn as affected by four tillage systems and various fertilization strategies at the Northeast Research Farm.

Tillage	Fertilization treatments [†]					
	Check	Planter band	Broadcast	B+S	Deep band	D+S
	bu/acre					
Plow	177	174	181	180	173	177
Chisel	185	190	190	190	187	190
Ridge-Till *	169	169	164	174	175	180
No-Till *	177	183	178	189	187	188
Means	177	179	178	183	181	184
	g/plant					
Chisel *	3.47	4.12	4.33	4.38	4.13	4.51
Ridge-Till *	2.82	2.78	3.00	3.18	2.98	3.55
No-Till *	2.43	3.05	2.80	3.26	2.80	3.42
Means	2.91	3.32	3.38	3.61	3.30	3.83

[†] B+S = broadcast plus planter band, D+S = deep-band plus planter band. Early growth was not measured for the moldboard-plow tillage.

* Statistically significant differences.

Implementing Management to Optimize Economic and Environmental Performance

- Optimal Farming System and Rotation
- Tillage, Residue, Cover Crop System
- Fertilizer Nutrient Placement/Timing System
- Manure Management Systems
- Precision Farming and Measurement System
- On-Farm Research Validation System

Management Goals to Achieve High Yields and Profitability

- Tillage and Residue Management
- Cover Crop Inclusion
- Seed and Starter Placement
- Optimum Row Spacing and Population
- Fertilizer Placement, Sources and Timing
- Hybrid and Variety Selection

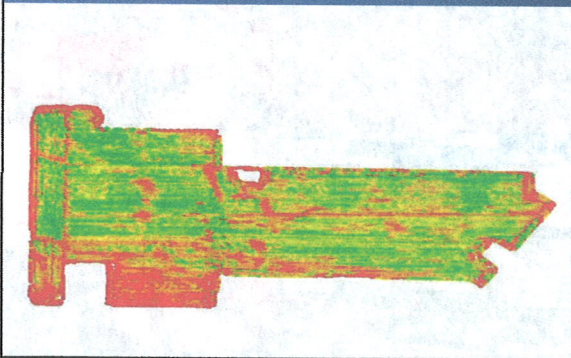
Partial Budgeting for Each Goal

Precision Farming Opportunities in No-Till Cover Crop Systems

- Guidance
 - Enhanced Seed and Nutrient Placement
 - Cover Crop Application
 - Improved Field Efficiency
- Yield Monitoring
 - Measure Yield by Hybrid/Variety and Pixel
 - Measure Soil Types and Nutrients by Pixel
- Variable Rate Application
 - Apply Nutrients and Seed by Pixel
 - Improve Efficiency & Profitability by Pixel



On Farm Research



Developing a Fertility System

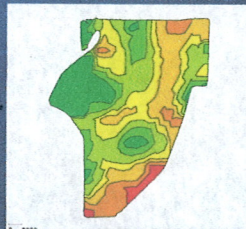
- **Soil Chemical and Physical Properties**
 - Soil Nutrient, OM and Texture Test
 - Texture, slope and Water Holding Capacity
 - Soil Quality and 3-D Info
- **Soil Sampling Points and Zones**
 - Grid/Zone Sampling
 - Yield Maps, Soil Type Maps, Infra Red or other layer information
- **Fertility Needs and Nutrient Use**
 - Timing, Selection and Placement of Nutrients
- **Equipment and Precision Ag Tools**

Measure Soil Types and Nutrients

Soil Type



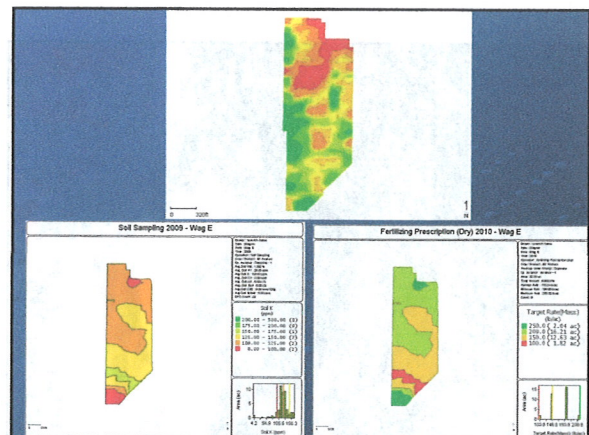
Soil Potassium



Potassium (K) Soil Test Results with Standard Vs. Grid Sampling on 54-Acre Example Field

Sampling Type	Total	Acres/ Samp	Ave. K Sample	Standard Deviation	Coefficient of Variation	Field K ₂ O lb
Grid	27	2	157	28	57.7	6,000
Standard	7	7.7	157	17	32	5,940

K ₂ O/Acre Standard (7 Samples)				Grid (27 Samples)			
Soil Test	K Range	Fert Rec	Samples	%	Samples	%	
0-99	V. Low	250	0	0	0	0	
100-124	Low	200	0	0	2	7.5%	
125-149	Optimum	150	2	28.5%	12	44.3%	
150-174	High	100	4	57.1%	7	26.0%	
175-199	Very High	50	1	14.3%	3	11.1%	
200+	Ext High	0	0	0		11.1%	



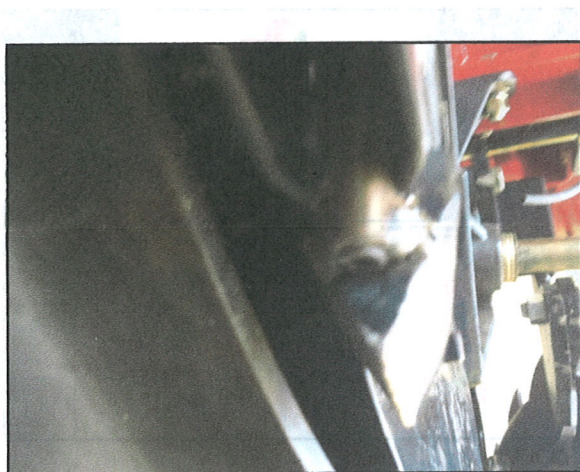
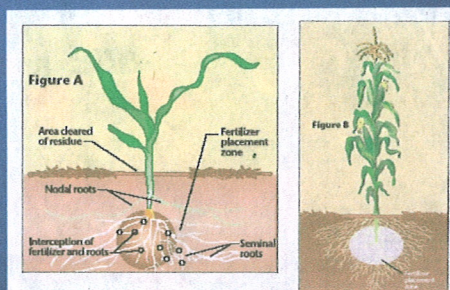
2011-2014 Potassium Program Example

- Corn Beans Use 120 lb K in 2 years
 - Use 100 lb of K in Corn Broadcast
 - Variable Rate K in Bean Year to Match tests
- Bean Prescription Maps

▪ 0-100 K	210 lb K ₂ O
▪ 100-125 K	180 lb K ₂ O
▪ 125-150 K	150 lb K ₂ O
▪ 150-175 K	120 lb K ₂ O
▪ 175-200 K	90 lb K ₂ O
▪ 200 -225 K	60 lb K ₂ O
▪ 225+ K	0 lb K ₂ O



Nutrient Placement and Efficiency



Cover Crops – What to plant?

Heidi Johnson, Dane County UWEX

<http://fyi.uwex.edu/covercrop>

What are your goals?

Erosion control – grow adequate biomass to cover soil through May or June of following year

Grow nitrogen – need time for nodulation and a lot of growth needed to take an N credit

Compaction alleviation – need adequate rooting structure, fine roots do most of the work

Nutrient scavenging – need rooting depth AND contribution to following crop

Spring forage – best tonnage and quality

And then there is the realities.....location, rotation, cost, equipment....

Pick a cover crop or mix that you KNOW meet all of this

Covers for after wheat (or vegetables)

This is a rare opportunity to use diversity of covers!

Grasses/small grains

Winter terminating – oats, barley, (sorghum-sudan)

Winter surviving – rye, wheat

Brassicas – radishes, turnips

- Research doesn't show an N credit

Legumes – berseem clover, crimson clover, red clover (frost seeded), peas

- Research on crimson and berseem
- Research on red clover

So many options, how do you choose?

Is corn next? Use a legume

Is erosion a problem? Use barley, oats or rye as part of the mix

Is compaction a problem? Use MIX with radishes

Covers for corn silage

Winter terminating – oats, **spring barley**, (annual ryegrass)

- Should be planted by mid-late September to provide erosion control

Also options for spring forage

- What about brassicas (radishes, turnip) or legumes? Not recommended due to timing

As soon as possible!

How to plant?

Pre-harvest – highboy or airplane

- ### How much to plant?

- Cereal rye – 30lbs is plenty (10-20lbs in mix)
- Oats or barley - one bushel

Covers for Corn grain and Soybeans

Pre-harvest late season planting with an airplane or highboy – mostly rye. Crawford county has had some luck with other mixes

- ### Early season – interseeding at V5

- Mostly corn, not much success with beans
- Experimental at this point
 - Research conducted at Arlington and Lancaster the last three years
 - Red clover has given most consistent results
 - Other things tried – cereal rye, berseem, crimson, oats and peas, radishes, winter rye
 - Seemingly not much impact on corn yield
 - Experimenting in NE WI
 - Red clover also most successful
 - Lots of farmer experimenting going on!
 - ***HERBICIDES ARE THE BIGGEST PROBLEM***